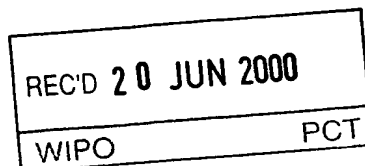




PCT/GB 00 / 01082



INVESTOR IN PEOPLE



The Patent Office
Concept House
Cardiff Road
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NP10 8QQ

097-936635

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

I also certify that the attached copy of the request for grant of a Patent (Form 1/77) bears an amendment, effected by this office, following a request by the applicant and agreed to by the Comptroller-General.

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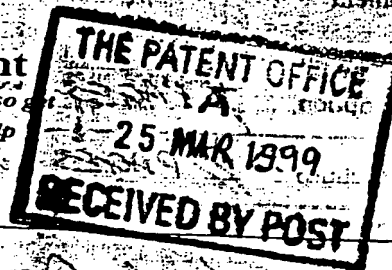
Dated

3 APR 2000

The Patent Office

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)



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P01/7700 0.00 9906800.9

The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1. Your reference

2. Patent application number

(The Patent Office will fill in this part)

9906800.9

3. Full name, address and postcode of the or of each applicant (underline all surnames)

JOHN NORTH
21 BRIAR COURT, GUARDIAN ROAD,
NORWICH, NORFOLK, NR58 PR

Patents ADP number (if you know it)

074 8276300 (Rdes)

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

PRESSURE WASHING AND VACUUM DRYING
MACHINE FOR GARMENTS.

5. Name of your agent (if you have one)

HYDRA THERM ENERGY INTERNATIONAL
21 BRIAR COURT, GUARDIAN RD,
NORWICH, NORFOLK, NR58 PR.

KEITH W. NASH & CO
90-92 REGENT STREET
CAMBRIDGE
CB2 1DP

Patents ADP number (if you know it)

FS/77 51.3.2NO

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country	Priority application number (if you know it)	Date of filing (day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing (day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

PRESSURE WASHING AND VACUUM DRYING MACHINE FOR GARMENTS

FIELD OF INVENTION

The invention concerns the hybrid combined washing and drying laundry machine, using a pressurised capsule washing drum and a high vacuum dehydration, strong suction drying cycle.

BACKGROUND OF THE INVENTION

The invention falls into the field of domestic and industrial washing and drying machines.

All clothes washing and drying machines are known, they operate at a negative pressure using a rotary drum, with either top or front loading.

The method of washing clothes within a gas tight container is not a new idea it was first patented under the name wonder clean, this unit is a small table top portable washer, and is hand operated.

My invention is a fully automatic and is electrically operated and more advanced, due to the use of a pressure pump that increases the vapour pressure faster in conjunction with the design of the capsule washing drum and the central fine filter screen.

The drying cycle operates by condensation provided by hot air flow that is blown into the drum which removes the moisture contained in the laundry.

They are all designed in a known manner with electric motors and heaters, as described by the patents cited.

My invention provides for about 90% time and energy saving, due to the pressure capsule washing drum which rotates and tumbles the laundry, due to the axis of the

capsule washing drum being perpendicular to the axis of rotation.

Provided with a high vacuum pump, with a strong suction dehydration action for the rinse and drying cycles.

SUMMARY OF THE INVENTION

The present invention employs a pressurised capsule washing drum, with convex dished outer ends, with a central internal cylindrical high vacuum sleeve shaped filter raised screen, this has fine perforations in order to protect the laundry, whilst ensuring that all residual water is fully emptied, by suction during the rinse and continuous dehydration drying cycle, via the pressurised three port conduit high vacuum pump, to create a strong suction force above 760 mm Hg.

The operation of the vacuum jet pumping apparatus, is via a venturi tube with peripheral air ducts, set around the outside of the venturi outlet, which accelerates the flow, the venturi tube is connected to the branch inlet, at the point of the 90° bend radius, relative to the centreline of the tube o/d, to provide a strong suction source for vacuum.

The centrifugal pump delivers the water through the venturi supply tube at between 150 psi to 300 psi, depending on the application domestic or industrial.

The centrifugal air blowers feed tube is connected to the peripheral air chamber to control air flow, around the venturi which in turn controls the suction force. Atmospheric pressure at 14.72 psi produces the highest vacuum, an increase in pressure causes cavitation within the flow and reduces the strength of the vacuum from 760 mm Hg down to 300 mm Hg.

The suction force is controlled through the air pressure relief valve, not shown. The

4

Fabric care with gentle rotation. No heat for drying.

5

Gives a superior wash and dry to the present class "A" wash and dry claims, with all loads, due to the pressure of the gases permeating the garments.

6

The efficiency of pressure and vacuum saves water, electricity and detergent.

7

Drying through dehydration with strong suction due to high vacuum, no heat reduces wear and tear on garments.

8

Low electrical energy consumption per year present system, 1,108 kWh year, new 65.18 to 104.28 kWh year = 200 washes per year.

9

Low water consumption per year, present 15,000 litres, new 5,000 to 6,000 litres.

10

The design has eliminated the age old problem of vibration in washing machines. The lightness of the new design enables ease of movement.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows : a side elevation view partially in section of a capsule washing drum front loading machine.

Figure 2 shows : a top longitudinal elevation view partially in section of a capsule washing drum.

Figure 3 shows : a radial elevation of a capsule washing drum, through the central section A-A of the internal sleeve fine suction filter.

Figure 4 shows : a front elevation partially in section of a capsule washing drum machine.

Figure 5 shows : a schematic sectional view of a rotary swivel joint connected to the vacuum venturi pump.

Figure 6 shows : a diagrammatic view partially in section of a venturi vacuum jet pump.

Figure 7 shows a schematic of a centrifugal pump for suction control.

Figure 8 shows : a side elevation view partially in section of a capsule washing drum top loading machine.

Figure 9 shows : a diagrammatic view of a pressure/vacuum capsule washing drum machine with controls.

Figure 10 shows : a diagrammatic view of a front display panel.

Figure 11 shows : a top elevation cross section view of a glass transparent pressure/vacuum rotational sealing inner plug door and stationary transparent outer door.

Item 19, venturi inlet Item 4, venturi aperture Item 3, centrifugal air pump Item 1, air inlet Item 18, air chamber Item 2, peripheral air ducts Item 5, branch venturi inlet Item 6, to center line of the 90° radius I/D tube bend Item 7.

Figure 7 shows a schematic of a centrifugal pump Item 1, air inlet Item 18.

Figure 8 : discloses a side elevation view partially in section of a top loading capsule washing drum machine showing outer cabinet shell Item 9, adjustable leveling feet Item 10, capsule washing drum Item 1, press twist lock pressure cap Item 33, top loading door Item 2, rotary transparent glass door Item 2, bearing block retaining axial drive shafts Item 3, and 24, support frame for capsule drive shafts Item 4, and 17, water and detergent supply tube to heater tank Item 5, water heater Item 16, controls Item 6, detergent drawer Item 7, water supply to drawer Item 8, suction inlet to pump from heater tank Item 11, electric drive motor Item 12, for water/detergent pump Item 13, water/detergent supply tube Item 15, 26, and 20, to control valve and drain outlet Item 25, for supply to the capsule washing drum through the rotary swivel joint Item 23, vacuum tube Item 27, venturi tube Item 28, air supply tube Item 29, centrifugal air motor/pump Item 30, air inlet to pump Item 31, electric drive motor and reduction gearing Item 14, motor drive pulley Item 21, capsule washing drum drive pulley Item 32, drive belt Item 22, hot water in Item 19, cold water in Item 18.

Figure 9 : discloses a diagrammatic view of a pressure/vacuum capsule washing drum machine showing washing machine cabinet shell Item 7, dual loading door Item 6,

controls Item 1, and 2, detergent loading drawer Item 3.

Figure 10 : shows a diagrammatic view of a front panel display showing a LCD or glow bar indicators Item 5, control Item 4.

Figure 11 discloses cross section elevation view of a dual transparent inner rotary plug door and stationary transparent outer door showing capsule wall Item 12, inside capsule Item 15, fine perforations Item 16, central filter screen sleeve Item 14 bearing Item 10, bearing block Item 11, laundry loading port Item 13, pressure seals Item 7, outer cabinet shell Item 9, hinged door Item 3, hinge not shown transparent outer door Item 2, transparent inner door Item 1, bearing Item 6, retaining circlip Item 8, central dual door retaining unit Item 4, retaining countersunk screws Item 5.

THE EMBODIMENT OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED AS FOLLOWS :

Claim 1 : a method is claimed for the use of a capsule type washing drum with a pressurised door. With the axis of the capsule perpendicular to the axis of rotation, which is midway along the capsule.

Claim 2 : a method is claimed for the use of a a internal central filter with fine holes to increase the gaseous content of the liquid as it enters the capsule.

Claim 3 : a method is claimed for the use of a a transparent dual rotating inner door connected to a stationary outer door, connected to a central member.

**U.K. PATENT SPECIFICATION
PENDING PCT APPLICATION**

NORTH

March 1999

ABSTRACT

**PRESSURE WASHING AND VACUUM
DRYING MACHINE FOR GARMENTS**

Patent Application Number GB 990
Filed March 25 1999

Inventor John North. c/o Hydratherm Energy
International, 21 Briar Court, guardian Road,
Norwich, Norfolk, NR 58 PR

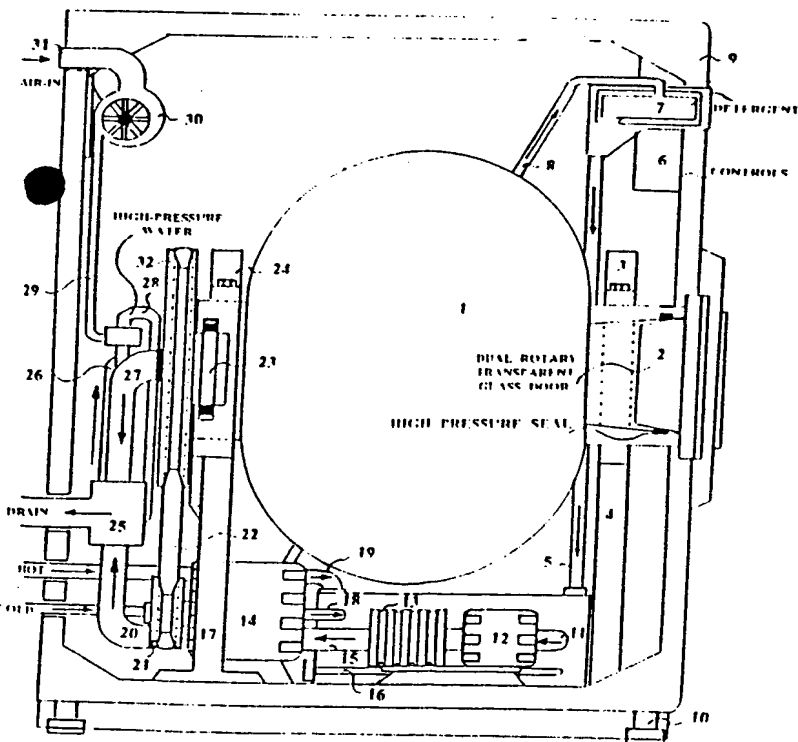
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GB 2075559	Miele & CIE	1981-11-18
WO 9820195	Miele & CIE	1998-05-14
GB 2300700 A	Electrolux Zanussi	1996-11-13

DOCUMENTS, REFERENCES CITED

Wonder Clean

FIGURE 1



The invention relates to a pressure washing and vacuum drying machine for garments. It comprises a rotating capsule drum with a twin cylindrical central section and convex dished outer ends.

The axis of the capsule is perpendicular to the axis of rotation, which is midway along the capsule.

The delivery and suction ducts pass through the central axis rotary joint, opposite the pressurised rotary dual front loading transparent glass door.

The hot water and detergent create gas pressure due to the rotation and tumbling action. This causes the gases and suds to permeate the garments releasing the dirt and stains, the washing cycle is greatly enhanced, reducing the time and energy consumption by 90%.

The pressurised capsule has a central sleeve filter screen which has fine perforations to protect the laundry, whilst ensuring that residual water is emptied, by suction, during the rinse and dehydration drying cycle of 1 to 2 minutes, via the high vacuum pump, to create a strong suction force.

The washing, rinse and drying cycle is 5 to 8 minutes.

19 Claims and 11 Drawings

FIGURE 1

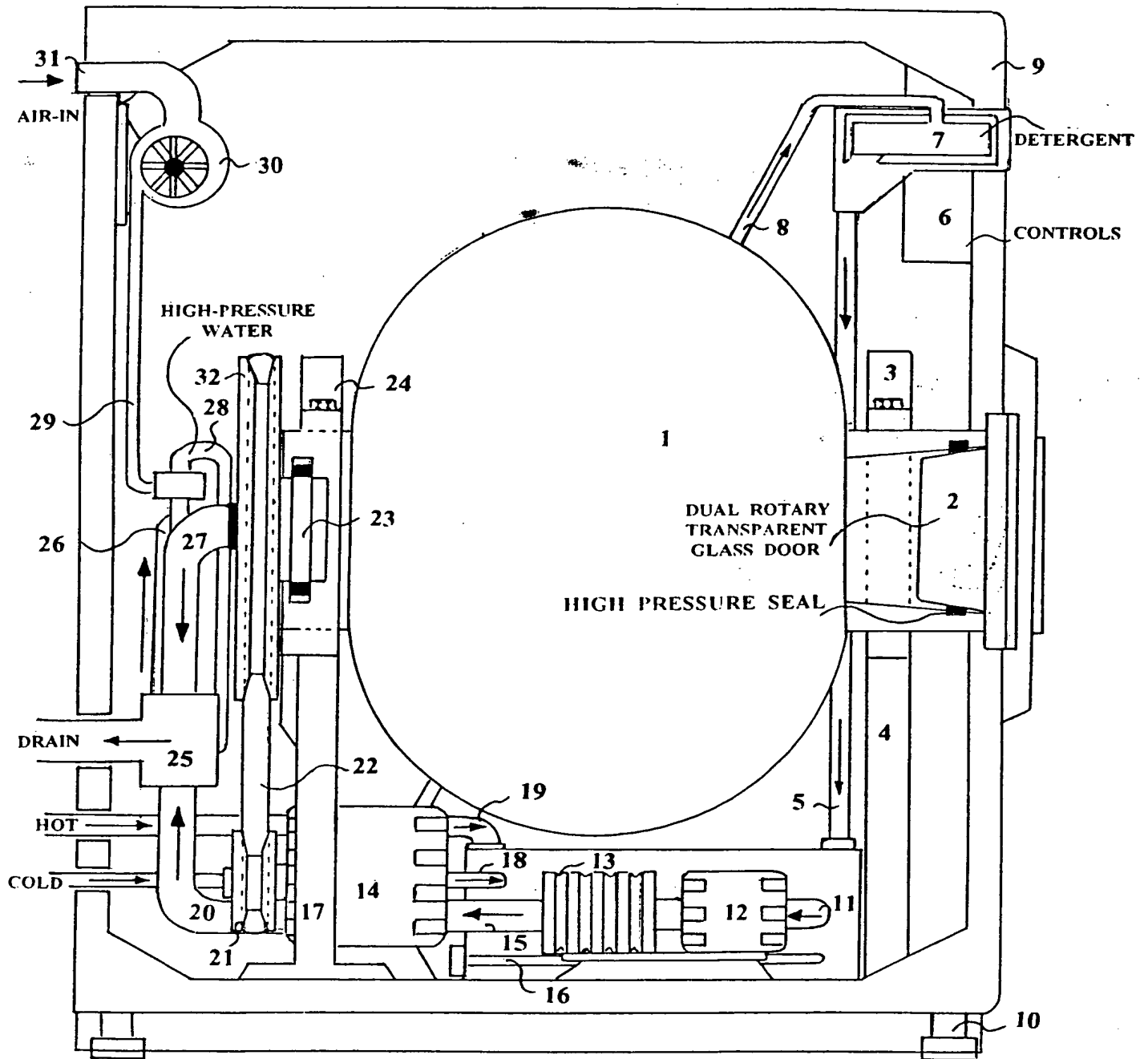


FIGURE 2

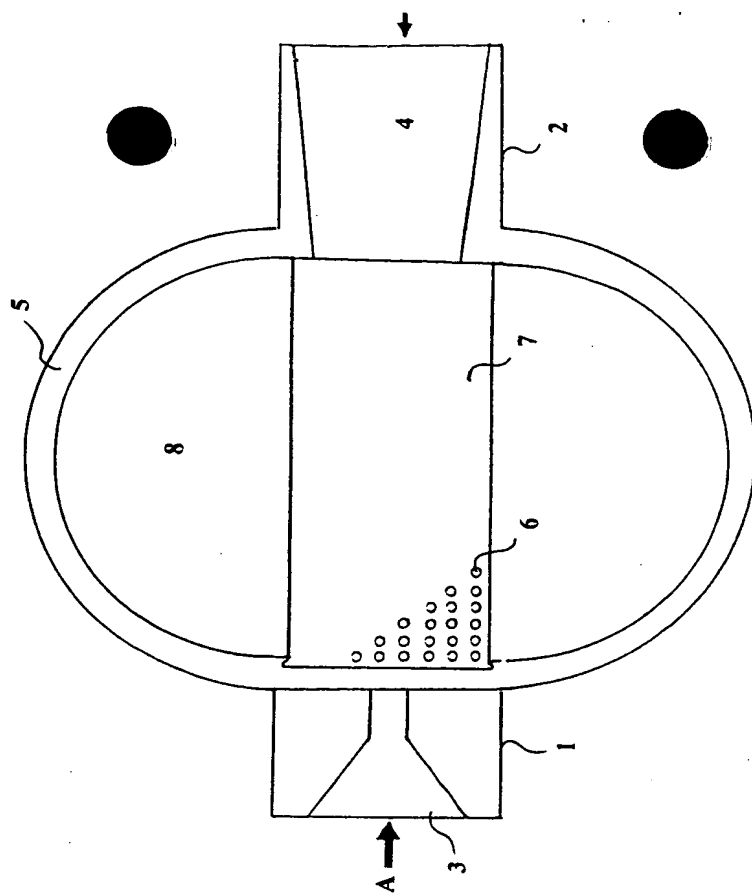


FIGURE 3

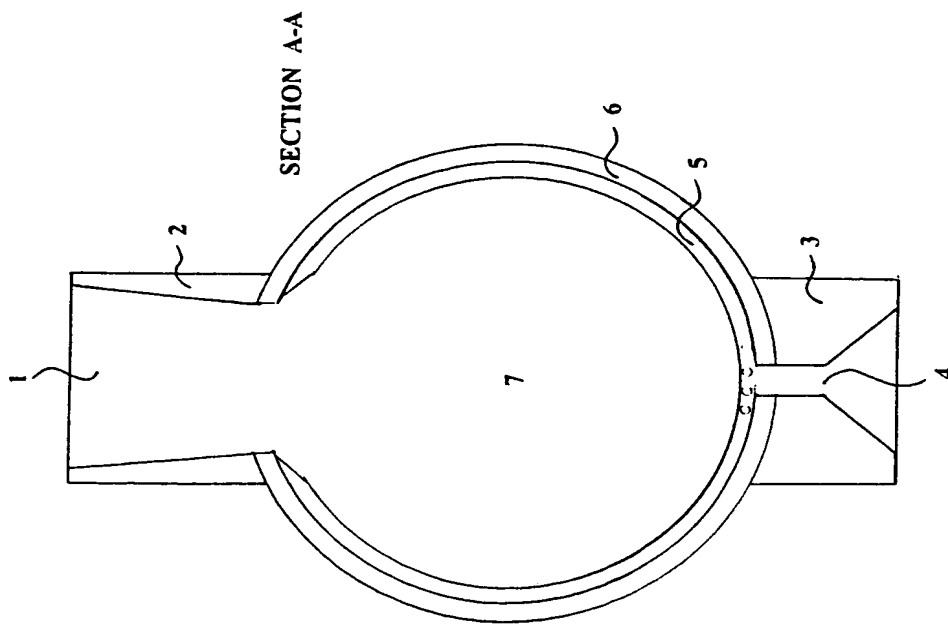


FIGURE 4

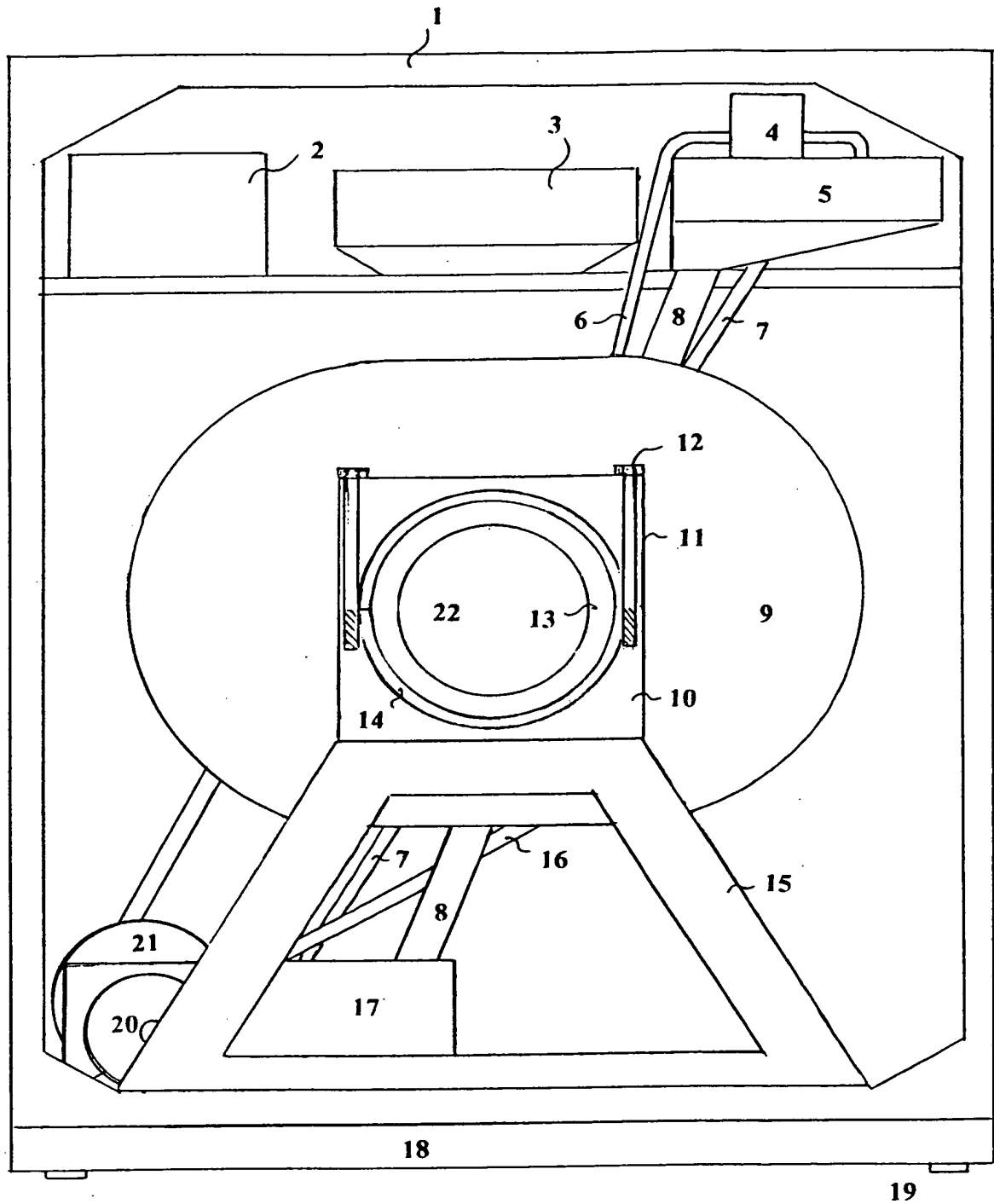


FIGURE 8

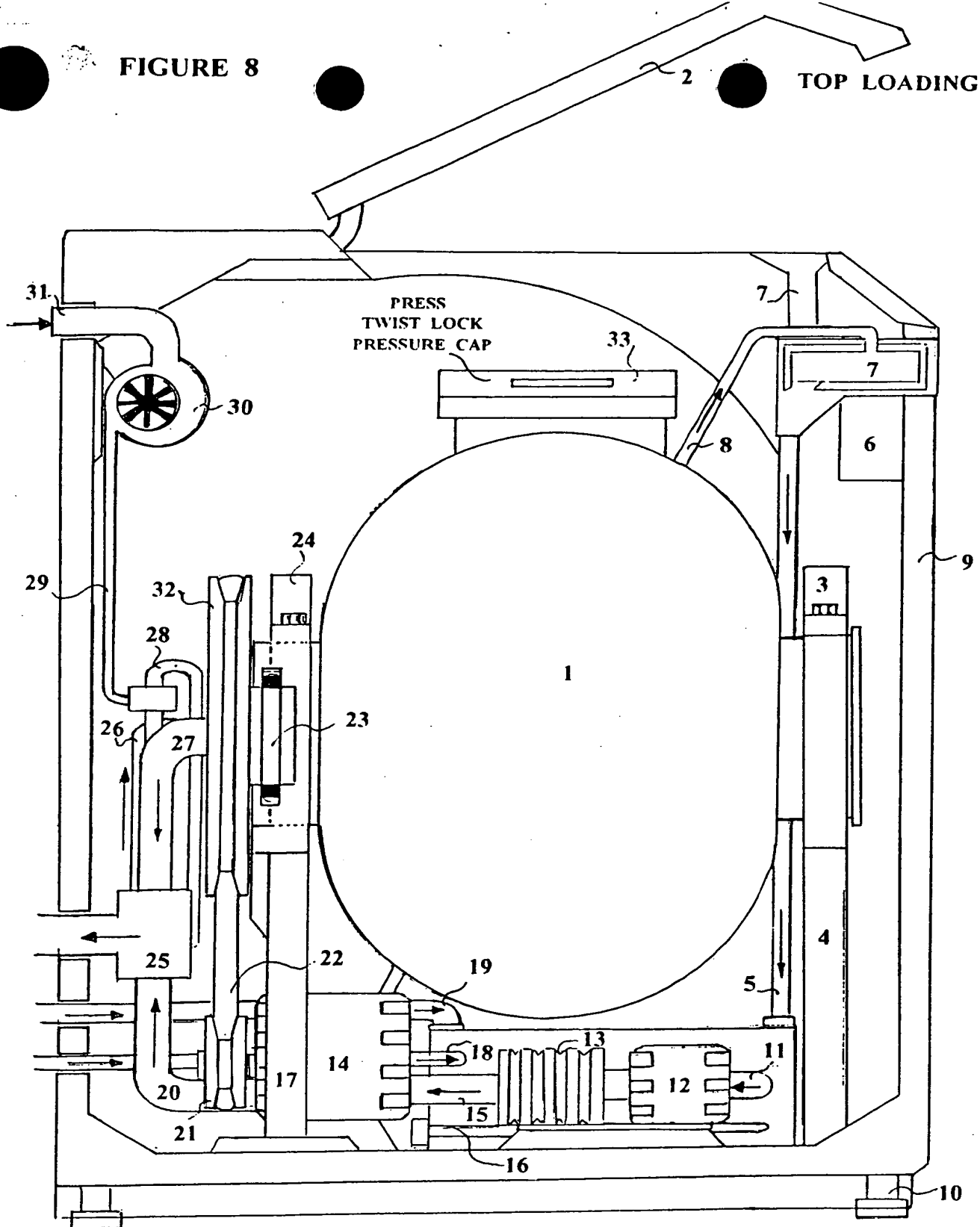


FIGURE 9

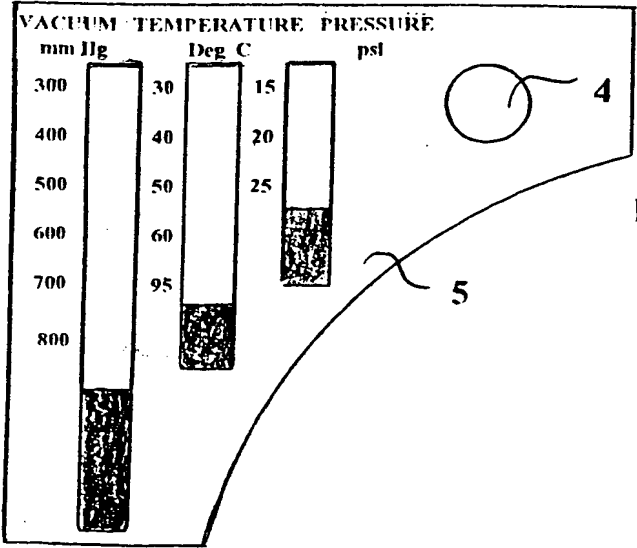
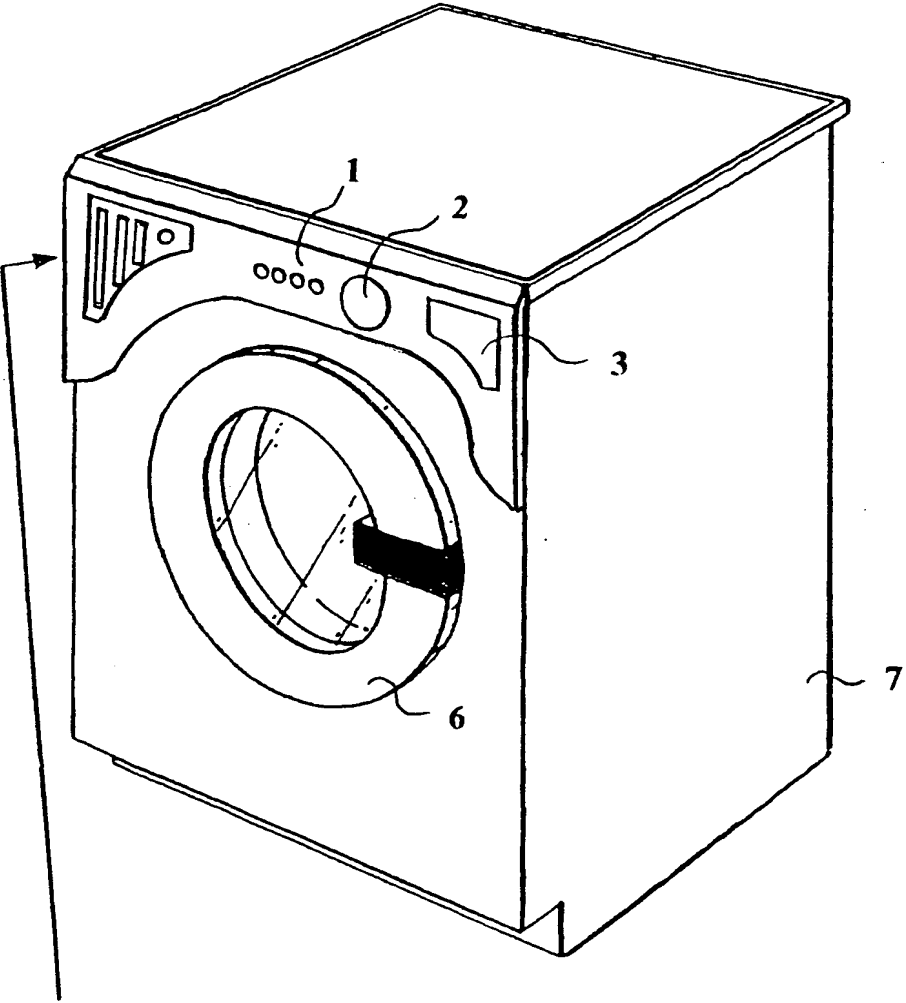
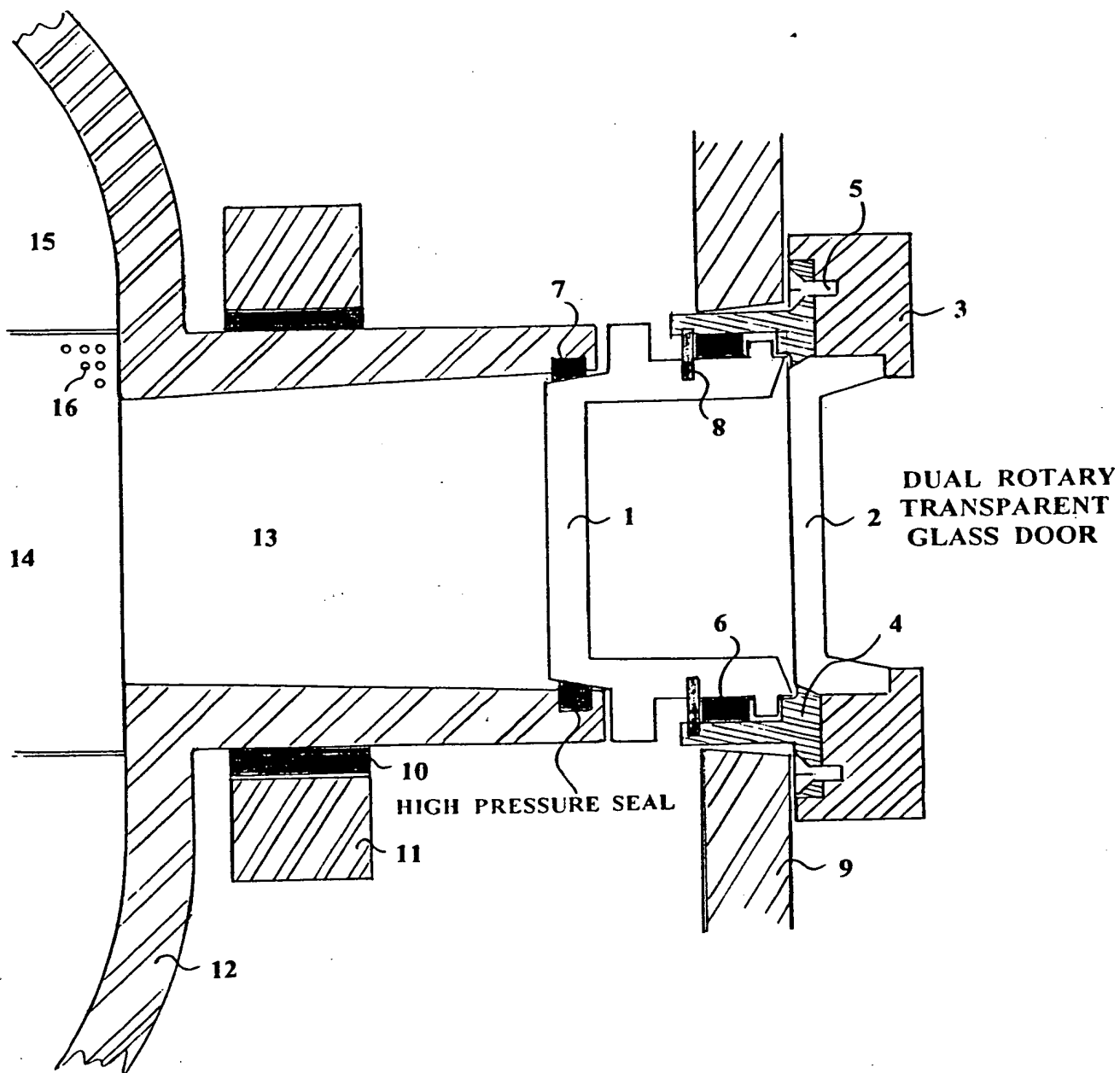


FIGURE 10

FIGURE 11



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